

AMERICAN JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 9.

PHILADELPHIA, JULY, 1888.

No. 7

Edited by JOHN BARTLETT.

PRINTING METHODS.

THERE are many things that can be well and thoroughly learned only by means of some plan of study dealing with comparisons. This is especially true of the various printing methods employed in modern photography.

The photographer has a wide choice of processes for the producing of the print from the negative. As chief among these we may name the ordinary albumen-silver, the plain-paper-silver, and the bromide-paper. These are undoubtedly the processes most used by both professional and amateur photographers. Of course we may add to these the platinum and the ferro-prussiate or blue process, but these are not so generally useful as the former.

If asked to sum up the useful points of the different methods, we should still incline to the ordinary silver print as affording the greatest range of tone, the greatest ease of management, the most perfect and beautiful results, and, when properly handled, the least outlay in money. As regards this latter all-important point, it is evident that the bulk of the labor being done by the photographer himself or his assistants, and the prices of the material being comparatively low, the cost of the finished prints, particularly when made in quantity, will compare favorably with other processes where the paper has to be bought ready prepared at a high price, and where only too often there is no redress in case of failure and loss from causes for which the photographer himself is by no means responsible. As there is a reverse side to everything, however, it may very possibly happen that seasons will arise when the labor and time of paid assistants must be economized to the uttermost, and when the quickness with which large numbers of prints can be turned off by the aid of an article bought ready prepared, will more than make up for the higher price at which the article has to be purchased.

We are not disposed to consume space in the consideration of these more strictly business points, for each photographer will necessarily regulate them for himself. Our province is rather to attempt to compare the values of the different printing processes we have mentioned in their proper photographic sense.

We have already alluded to the great range of tone afforded by the ordinary silver print, but it is even more extensive than many persons suppose, who think only of the conventional portraits of public and private individuals, and of the ordinary landscape and architectural studies seen in exhibitions. We shall only be reiterating the well-known saying among practical printers, when we remind our readers that the first factor of tone in the print is the character of the negative. A model printing

negative will often afford prints which may be toned to any desired color, from the rich warm red—almost cherry-hued, through chocolates, sepias and browns to violet, then to pure black, and finally to a steel blue-black just verging on ashiness. To produce these tones at will from such a negative will require no little attention to detail. The strength of light in which the print is made has some influence. A print rapidly made in the full glare of the sun's light will rarely stand the combined action of the toning and fixing baths as well as one that has been made more slowly in a more subdued light. Exceptions to this may sometimes be found in the case of negatives that have been over-developed or over-intensified, so that the brightest sun will be required to penetrate them and give a proper gradation of shades in the print. A proper toning bath must be selected, and the reddening which always takes place in the hypo-fixing bath and the final wash waters be noted and calculated for, as well as the remarkable return of color which occurs when the print is dried. Beginners and inexperienced printers are very apt to find their work overtoned to an ashy blue tint; forgetting that the prints "dry-up darker and bluer" they leave them too long in the gold bath, so that they there assume the precise tone wished for in the finished result. But, on the other hand, when we consider that the production of a certain tone or color in the finished print is really a matter that has to be calculated, and that requires thorough knowledge of the different solutions, it is little short of marvelous how perfectly regular tones can be made upon thousands of prints, even from different negatives, by an experienced man.

So much for the average silver print as usually seen. But this is only the beginning. Those who are not content with the brilliancy and polish of the print when mounted and rolled, can increase them to almost any amount by burnishing, or still more by making the so-called *glacé*. A better finishing method than either of these, however, is the cementing of the print to glass by means of gelatine; by this, all the beautiful brilliancy of the print as it appears in the wash-water is preserved, and the glossy surface of the glass does not convey such a "mock-polish" and artificial effect as the former.

Before the introduction of the bromide papers, it was customary to make enlarged prints on albumenized paper by means of special solar cameras fitted with powerful condensing lenses. Excellent results were obtained, but the loss from uncertain light and bad weather was very great. The tone of the albumen print was, however, preserved, and here we come to the great drawback to the bromide print, either for contact work or enlargements—its limited range of tone. That the fine brilliant black of a well-timed and skillfully-developed bromide print is very pleasing and good we do not deny; on the contrary there are certain subjects and certain effects that will be better suited by this than by any other tone; but the point is that the bromide print, being produced by a process of development, has the main characteristics of developed prints, *i. e.* less depth of shadow, with a tendency to the veiling of the finer details in the darks, together with a cold tone. To make a familiar comparison, we might say that the tones of a bromide and albumen print stand to each other in nearly the relationship of a wet collodion and an albumen lantern slide, where the collodion slide is invariably cold in tone unless specially treated.

Among the greatest beauties of the bromide print is its delicacy and perfection of half-tone. Great evenness of quality is another. The most ardent advocate of the

albumen print must have often noticed the striking difference in behavior between the "thick" and the "thin" edges of the sheet; with the bromide papers there is no such drawback; there is perfect uniformity of tone, so that if the opposing corners of the sheet be bent over so as to touch, no difference in tone is perceptible. It is by no means every albumen print that will stand this simple test. The chemical character of the bromide print affords the strongest grounds for the belief that the image will be permanent, and not fade in the disastrous manner common to all albumen prints. In this connection we may mention the fact that recent authorities advise the addition of some alkali—say carbonate of soda—to the fixing bath for the bromide print. When it is remembered that the developer is removed by means of an *acid wash*, and the print afterwards immersed in the hyposulphite, common caution would call for the presence of the alkali. A point that will always be in favor of the bromide print, is the ease with which it may be worked upon with the pencil or crayon, and other retouching articles. In this respect it is *facile princeps*.

Interest has recently been revived in the old method of silver printing on *plain salted paper*. That beautiful results can be produced in this manner will be attested by all who have seen the work shown at the Photographic Society by Dr. Charles L. Mitchell, of Philadelphia. The process is easy to work and very economical, particularly in the consumption of gold. The tones range from dull brick red to blue, and the prints are quite without gloss. As in the bromide print, there are certain subjects that will be admirably suited by just these qualities.

ELLERSLIE WALLACE.

RELATION OF THE PERMANENCY OF SILVER PRINTS TO THE METHOD OF PRINTING.

THE introduction of the bromide print, and the claim of its permanency, has called in question the keeping qualities of our silver albumen work.

Any one who possesses a collection of silver prints, specimens of which may date back some time, undoubtedly will notice on examination that while some have "fallen into the sere and yellow leaf," others are still in their prime condition, bright and beautiful, although the date of their production may be considerably less recent than the faded ones.

I had always believed that the fading was due to imperfection in toning and fixing, and in the majority of cases I think the cause of ruin does lie therein, but recently I have come to the conclusion, that the method of printing does, in many cases, affect the permanency of the silver albumen or plain paper.

It may be argued that if a certain percentage of prints survive the ravages of time, and still look bright and fresh after a score of years, the fault cannot be in the prints themselves, but in the process. If a few are permanent, why should not a proper manipulation enable us to guarantee, at least, comparative permanency?

I have seen plain and silver albumen prints produced by a variety of methods of toning and fixing, among which were some specimens by the old *sel d'or* process, others of quite recent date, made according to our latest formulæ. Amongst the old ones, where, it is said, the sulphur liberated from the acid hypo and gold bath does the toning, some were indeed weak and pale, but others made by exactly the same

formula were still excellent. Again, the jaundice seemed to have attacked some of the copies quite early in their infancy, even before their second summer.

The peculiar process employed may, I have no doubt, contribute to the fugitiveness of the image, but I hardly think it just to blame a formula without qualifying our condemnations, when it can show for its justification as many good results as bad.

In the last number of your excellent journal you have a note on "Beautiful Negatives and Bad Prints," in which you say :

"It is well known that there is no absolute assurance that a brilliant negative will yield a rich print; on the contrary, what is called a beautiful, plucky negative not infrequently disappoints the photographer by the indifferent character of the result obtained in the positive, while a comparatively thin, weak negative, by judicious printing, gives a most artistic and beautiful picture, rich in half-tones, soft in the high lights, and delicate in the shadows.

"We know it is the ambition of some manipulators to obtain brilliant negatives, which they exhibit with pride. Verily, they are entitled to their reward of praise, but we think those wiser who regard the negative only as one of the instruments, like the camera and lens, for obtaining the final result—a beautiful photograph.

"We do not wish to be understood as advocating careless or indifferent manipulation, but we do believe that less stress should be laid on good chemical effects, and more on the artistic merits of final results."

Now I shall agree with you heartily in the sentiment of the last paragraph. My experience has been that in the majority of cases the best negatives are not of a character demanding printing in the strong, direct rays of the sun; on the contrary, I have found, as doubtless you and others have, that comparatively weak negatives often surprise us by the beauty of the resulting print.

Of course, as you suggest, we take greater pains with negatives of such a character, and print them under tissue and ground glass, or out of the direct rays of the sun.

Many of these apparently thin negatives if examined will be found to be rich in gradation of tone, all of which is obliterated by too quick printing, and in such a case the only rational method is to print slowly.

Our gelatine negatives are very deceptive in appearance. We cannot always predict the best results from a good-looking, very clear negative. Indeed, I am inclined to think that a minimum amount of veiling on the gelatine negative often improves the appearance of the print—I suppose, by giving the shadows a chance to emerge more slowly.

But to return to the consideration of the subject with which I started out,—the relation of the permanency of prints to the method of printing. I am inclined to believe that the prints made from strong negatives are more permanent than those from weak, thin negatives, and that methods of toning and fixing, as regards the keeping qualities, come in for a minor place in the blame.

I shall not attempt to account for the permanency, but merely advance the fact as a result of experience. I have more prints, irrespective of age or method of production, made from strong negatives, which are still brilliant, than I have from weak negatives.

Understand, I do not mean by a strong negative one that is hard and violent in contrasts of light and shade. I think prints from such a source had better be subjected to a process which insures their disappearance at once. But by strength I mean the possession of brilliant high lights, deep shadows, and intermediate, rich gradations—one which takes some time to print, and will stand being put out in the sun without fear of the shadows being burnt out.

The light has a chance to penetrate the sensitive surface of the paper, which gives more body for the toning solution to act upon; but I said I would not theorize, but merely state my belief founded on experience. While upon the question of permanence, I think the mount and mounting solution very often should be questioned as to their guilt in the destruction of the print. Sour paste by the formation of lactic acid would undoubtedly discolor a print in a very short time. But I am getting off my text, and shall stop by asking you to question your experience whether you have not found the relation of the permanency of prints to be proportional to the strength of the negative employed.

A. H. BARTON.

THE permanency of silver albumen prints may have some dependence upon the strength of the negative. If the albumen surface of a deeply-printed copy (presumably from a strong negative) be toned up, the image will be found to have impressed itself clear through the film, and even upon the body of the paper underneath; while a lightly-printed specimen (presumably from a thin negative) shows the impression upon the surface only—scarcely penetrating the external film. However, we think that permanency is dependent more upon the strength of the silver deposit, the proper manipulation in toning, and the perfect fixing and washing, no matter what plan of printing and toning be pursued.—ED.

STUDIES FROM SITTINGS.

THERE is always a goodly amount of self-glorification in having one's portrait taken. It seems so like the creation of another self with all the modern improvements.

It is just this conscious vanity of the pleasure we take in the re-duplication of our majesty, ourselves, which makes us so anxious to persuade our fellow-kin, subject to like passion, that the operation is an unpleasant one to us, whatever of enjoyment it may give to others, and that it is a condescension on our part to undergo the torture.

The sitter who begins thus, by protesting that his innate inability to assume a pleasing expression or attitude will assuredly make abortive all the endeavors of the artist, is just the one who all the time is agonizing to call up his features to muster for a dress parade—to put their prettiest looks upon them.

These poor ones infected with this self-flattery, to hide the common human weakness, always begin by affecting an air of total indifference as to the outcome. They appear most awkward in all their movements, like the country boy who goes a-court-ing for the first time, but anon, ere the exposure begins, and they realize that in

another instant a counterfeit presentment of themselves will be limned for ages yet unborn to gaze upon, they summon up all their corporeal agents to the task, and try to transform themselves into an Adonis or an Ariadne.

The very beggar or fakir along the streets, whose face has more lines of humiliation and dejection than a frilled negative, when invited into our studios, and made to understand that we have discovered some elements of the picturesque in his make-up, at once,

" Drinks up the monarch's plague, this flattery,"

and mirrors in his countenance the self-consciousness of his newly-acquired importance.

These pleadings of self against oblivion become almost pathetic.

Who of us has not encountered the troops of eager ones anxious to find even a little nook somewhere in the scene we are endeavoring to photograph, although they know full well they shall never see the picture.

The power to make a good portrait is alone sufficient to establish a painter's fame.

Michael Angelo did not paint portraits, strictly so called, but, to judge from his statue of Julian de Medici, or even from his mythological Sibyls and the Prophets, we cannot doubt that, had he devoted himself to this branch of art, he would have been equally as great. We find in his historical subjects, as well as in the religious, all those qualities in the highest degree which make a true portrait.

Suppose the world possessed none other of the works of Da Vinci than his "Mona Lisa," whereby to judge of his wonderful powers, it would be enough, and yet it is a mere portrait; so is Holbein's "Erasmus," and Titian's "Mistress."

Mere portraits? Yes, and no.

Mere portraits, because they bring out the peculiar marks of individuality, the permanent characteristics, which indicate the disposition and the habits of the real self. More than mere portraits, because they show the mind's discernment in the face.

Reynold's and Vandyke's portraits, you may be sure, look very like the models they represent, or the friends of the models would have protested.

The finest portrait painting in the world, if it be not a likeness, will not satisfy that vanity which we have tried to show is the common trait of mankind; yet some artists will look upon us as the dullest of Philistines because we cry out with the vulgar for the likeness.

An idealised portrait, however beautiful, is not the man. There is something weird about it, just enough of a resemblance to make it uncanny. We do not like to be left alone in a room with it.

A portrait must have depicted considerable of our earthy nature, the vulgar quality of faithful likeness, to give it place in our candid appreciation of ourselves.

But what is the mirroring of the soul in the face. Leibnitz tells us, "All that takes place in Cæsar's soul is pictured in his face."

We must look for the character in the expression, and not judge of the traits of the man by generalizing on his features. Because the Roman soldier is represented with an aquiline nose, must we expect all warriors to have the hook? Grant, Sherman, Lee, and many other heroes of this and other lands, have noses in shape anything but the stereotyped heroic.

The Greeks never could understand how the soul of Socrates was put in the

body of Silenus: but doubtless he looked beautiful when his great mind pierced through the disguise.

I do not think a portraitist should be a physiognomist or a phrenologist; I would rather he would not—were he such he would have some preconceived idea what the model should be, and would not seek to discover the traits,—but he must be able to judge of character through the signature of the features in action or in repose.

Thick or compressed lips, open or sunken eyes, straight or curved noses, etc., may enable one to roughly line out a disposition, but the nicer distinctions of character must be read from the expression, which often contradicts the assertion of the physiognomy.

The human face is a most complex thing. It is not one, nor does it remain always the same.

The stolid immobility of a wax figure, where the resemblance to the human skin is so perfectly counterfeited, always disgusts us.

Not only does the light and shade upon the face change its expression every moment, but the slightest alteration of position indexes the thought going on within the mind. Each feature is in constant motion, and contributes its share to the expression of the sentiment or feeling animating the sitter.

If, for instance, we should depict on one day merely the expression conveyed by the turn of the head or the look of the eyes, and the next day delineate the mouth expressive of a new state of mind, how incongruous the result would be. Yet this is just what we find inferior portrait painters doing. They have not the ability to conceive as a whole the harmonious blending of the features. They have no imagination, or rather—what it should be called—memory. Their portrait is a man of shreds and patches; a veritable human crazy quilt.

Photography at its worst is consistent in its delineations. It is true, there are photographs and *Photographs*, but even the worst have a consistency. The expression may be dull, vapid, stupid, silly, simpering, ferocious, etc., but we find a concord in all the parts.

A truthful portrait is a perfect reflection of the inner man, and true portraiture is within the power of photography.

But the operator must be a man of culture, a man of refinement and taste, and must possess the power to divorce the attention of the sitter entirely from himself, to relieve him from all anxiety about the result, to cheat his personal vanity of the endeavor to appear to the best advantage.

The portraitist has no other resource than to judge of the moral nature of a man by his physique, but he may often guess truly at the character by observing some attitude or motion which reveals the disposition.

Study to make the sitter at ease. Make the exposure when he is wholly unconscious of the act. Avoid all those gentle admonitions: "A little more this way, sir:" "You lean rather too much forward, madam:" "Your eyes in this direction:" "Now, then, assume a pleasing aspect." "Thank you."

Make all the necessary corrections and improvements yourself, while engaging your sitter's attention far away from your design. Or, what is better still, get the sitter himself to make the required change unconsciously.

Set posing, arranging of the drapery, fixing of the folds in this or that precise

way, is a bad method. Man is imitative, and your mechanical movements are apt to become contagious.

1171 Have an eye for the beautiful: watch when chance—or what is the same thing—nature—makes the utilitarian lines of beauty.

"These requirements are too much to ask of a photographer." "Life is too short, prices too low, to take such pains." And so they are and so it is, if your only aim is to use your art to get as much money out of it as others do from stock speculations. But remember what Ruskin says—

"You cannot serve two masters," "You must serve the one or the other. If your work is first with you, and your fee second, work is your master, and the Lord of work, which is God. But if your fee is first with you, and your work second, fee is your master, and the Lord of fee, which is the Devil; but the lowest of these—the least erected fiend that fell."

JOHN BARTLETT.

PHOTOGRAPHING WHITE ON WHITE.

Translated from *Photo Notiz*.

I RECENTLY received a visit from a collector who had come into possession of a number of patterns of beautiful lace, which he was anxious to use in illustrating a work on the subject he intended to publish.

He naturally sought the cheapest method of illustration, and accordingly had recourse to photography.

He called first of all upon the phototypist, and, being convinced, gave his order.

A series of photographs was produced, all sharp, neat, distinct, clear, elegant—but withal unsatisfactory. They did not come up to the mark he demanded.

The delicate tracery, white upon white, the fine structure of the meshes, was nowhere visible in the pictures. The patterns of lace, appeared as flat white surfaces, destitute of all detail, the mere form being indicated.

The virtuoso sought elsewhere for his beau ideal of illustration, but the result was ever the same, and he became finally convinced that it was not within the scope or tenor of the photographic art to achieve good results. In fact, practical operators candidly confessed that nothing better need be expected, considering the circumstances; that it was impossible for photography to do any better; that it was unreasonable to demand such excellence from a mechanical art, etc., etc., and so on.

Still persistent, he turned to an intelligent amateur for advice. He was informed that dry plate work was inadequate to produce satisfactory results in such cases, and that collodion would faithfully give all the minutiae in the network, because it emphasized more distinctly the high lights in objects such as he desired to have represented.

After a diligent search, he unearthed a collodion man, gave his order, was assured with confirmations strong of the certainty of good results, and went on his way rejoicing, till the time of the appearance of the promised beauties.

He came, he saw, he ———. It was a thing of nought!

In his desperation he took the resolve to study photography, that he might encompass the difficulties.

He came to our Technical High School, and pathetically recounted his tale of woe, bemoaning the total inadequacy of photography to satisfy his cravings for truthful representation of objective realities.

How widened was the narrow horizon of his opinion of our art when I told him that the limitations were confined to the professors, not the profession; that our modern dry plate process was fully capable of yielding the beautiful results he longed for; that the problem to be solved did not depend upon the method employed, but upon the manner in which the object was illuminated.

Each mesh of the lace consists of cylindrical threads lying close together. Now, if each of these fine threads is to be represented in the picture, it is necessary that they be distinguished from each other by light and shade.

If a lace pattern so constructed is photographed in a full, broad light, it will be uniformly illuminated. The threads on the left will receive just as much light as those on the right, and all shadow will be destroyed. The threads will form homogeneous white lines, which coalesce to form a monotonous white surface.

Proceeding upon this assumption, I closed up the studio so that there remained only a narrow opening, 60 centimetres wide, in the side glass partition, through which light was admitted.

At a distance of 78 centimetres from this opening, I placed the copying board upright, upon which I fastened the lace, so that it was illuminated more by a side light. The studio of course was rather dark.

Even to the eye the effect was plainly visible. Each single thread was distinctly lined out most beautifully, and the pattern had a very plastic appearance, as if it were cut out of marble.

The patterns were made actual size. Despite the feeble illumination an exposure of 9 seconds with Steinheil-Aplanatic stop 4 was sufficient. The day was sunny and clear. It is to be understood that in such a case, white delineation upon a ground of white, all over-exposure must be most carefully avoided. Many of the patterns obtained too high relief by the method of illumination described, so that it was necessary to increase the light opening to double.

By these arrangements I was enabled to fully satisfy the collector. The negatives I obtained were indeed beautiful in detail. From this narration we may learn of how much importance is the proper illumination of the subject—how carefully one must consider the means to the end.

Not long ago I encountered another experience of a like kind. A dealer desired to have a number of photographs made of plaster casts, and brought as samples a couple of Parisian photographs. When the order was completed, the work was at once delivered, but it came as promptly back. The dealer justly objected to the flat images, without high lights or shadows. A suit followed. The defendant argued he had done his best, and pleaded the limitations of his art. The negative was shown; technically, they were good, clear and sharp. The expert to whom the affair was referred for decision, declared that the photograph had been taken in too broad a light, which destroyed all relief in the statuettes, and gave no alternation of light and shade.

I received shortly after a number of these same statues to photograph, and made use of a light coming from an opening 1 metre broad and high, the objects

being placed 1 metre from the source of illumination, every reflection being avoided, in order not to lighten up the shadows too much.

The photography of objects, white on white, is often demanded in practice. Snow scenes may be included in the catalogue. Buehler, in Mannheim, has produced some excellent results in snow pictures—the despair of the amateur, who usually in Winter scenes gets nothing but a smudge of white for his pains.

DR. H. W. VOGEL.

ORTHOCHROMATIC COLLODION EMULSION.

A communication to the Imperial Establishment for Instruction and Experimentation in Photography, etc., in Vienna.

THE collodion negative in one certain respect undoubtedly possesses an advantage over the gelatine plate—that is, in the greater transparency of the film and the delicacy of modulations of the image. Inasmuch as these qualities are of especial importance in photo-mechanical printing processes, I have undertaken to introduce to the Imperial Institute the orthochromatic collodion process, in form of bromide of silver emulsion.

The method of orthochromatic photography with bromide of silver collodion has, indeed, been employed for some time in a few galleries. However, no information has as yet been vouchsafed by those who have successfully carried on the operations, which might be of value in teaching the certain and easy preparation of the plates. I have therefore entered again into my old method of experimenting, and have succeeded in producing the following very simple plan for working, which, despite its extreme simplicity, is very effectual.

The method I here recount has been in use in the Imperial Institute for more than a month. The details of the operation were given in a lecture at the establishment on the 14th of May.

The emulsion is made as follows:

A. 15 grammes crystallized silver nitrate are dissolved in a flask containing 12 c. c. water, and then 90 c. c. alcohol (95 per cent.) is added; to the whole is now added 150 c. c. of 4 per cent. raw collodion.

B. 15 grammes pure crystallized cadmium bromide are dissolved by the aid of gentle heat in 75 c. c. of alcoholic solution of eosin* ((1-800), and then 150 c. c. m. of 4 per cent. solution of raw collodion is added.

The bromized collodion is added to the silver collodion in the dark, a small portion at a time, (the mixture being facilitated by constant agitation), until there remains of the bromized collodion only 5 to 10 c. c.

Test now is to be made of the emulsion to ascertain if there is an excess still present of the silver nitrate, inasmuch as this collodion emulsion works well only when there is a slight excess of the silver present, which forms an eoside of silver. If the bromide is in excess the sensitizing action of the eosin silver only comes in play, and as it is much more feeble the emulsion is rendered very insensitive.

* Many varieties of eosin give a deeper tinge and are employed much more diluted (1-2000). I make use of the *gellstichige* (yellow) instead of the *blaustichige* (blue), inasmuch as the latter does not act favorably in the present process. Phloxin can also be employed advantageously.

In order to detect an excess of silver put a few drops of the emulsion upon a piece of glass, and allow it to set; then drop a drop of chromate of potassa upon it. If any excess of silver is present it will be indicated by an intense cherry-colored stain of chromate of silver, in which case add more bromized collodion and test again. As soon as a paler orange red spot is produced, it is indication that the emulsion is fit for use.

Emulsion with great excess of silver nitrate gives more sensitive and stronger films, but impure and frequently foggy results.

When the uncombined silver is not sufficiently in excess, the emulsion is less sensitive, and the orthochromatic effect not so good.

In such a case, dissolve 1 gramme of silver nitrate in a few drops of water, add 10 c.c. alcohol to it, and mix it gradually with the emulsion until a good test result is obtained. When much dye stuff is used, an excess of silver nitrate is demanded.

The emulsion prepared as above may be used at once, but it is better if kept from twelve to twenty-four hours.

The glass plates to be coated with the emulsion are first edged around with caoutchouc solution, then collodionized as usual.

After the emulsion has set, they are to be dipped in pure spring water, and kept in it until the water bathes the surface of the plate uniformly.

By this means any free nitrate remaining in the original unwashed emulsion is completely eliminated.

It is best to use the plate wet, as upon drying the sensitiveness diminishes.

The exposure is about one-half that of a wet plate with iron developer.

Most oil paintings may be photographed with this emulsion without interposition of the yellow screen. Harsh blues may be modified by using a screen covered with aurantia.

As a developer, either ferrous oxalate or pyro and alkali may be used.

The following has been advantageously employed:

<i>A.</i>	Water,	100 parts.
	Sulphite soda,	10 "
	Bromide potassium,	3 "
	Citric acid,	1 "
	Pyro-gallic acid,	2 ½ "
<i>B.</i>	Ammonia,	1 vol.
	Water,	6 vols.

For use, take

Water,	100 c.c.
Pyro (A.),	10 "
Ammonia (½),	10 "

The image comes up quickly, and is fully developed in thirty to fifty seconds.

If this developer causes fog, use,

B.,	6 parts.
A.,	12 "
Water,	100 "

It is worthy of remark that, with over exposure with collodion emulsion plates, the silver deposit is red.

After fixing, the plate is washed, flowed over with weak alcohol (50 per cent.), to get rid of the last trace of eosin, and finally, rinsed once more with water.

Intensification is seldom necessary. It is done, when required, with silver, pyro, and citric acid.

Reduction is more frequently required. The well-known Farmer's solution may be used, consisting of ferri-cyanide of potassium (red prussiate of potassa), hypo-sulphite of soda and water.

The emulsion keeps well from eight days to two weeks, after which time fog is liable to set in.

Emulsions made with slight excess of silver bromide, the excess being added just before using, are more durable.

Good results are likewise secured when the emulsion is precipitated with water, washed, dried, and re-dissolved in ether—alcohol, the dye stuff and the silver added just before using.

The first described method, however, is simpler, quicker and less expensive.

In the use of collodion emulsion plates, a preservative of albumen or gelatine has been tried advantageously.

DR. J. M. EDER.

THE COLD BATH PROCESS OF PLATINOTYPE PRINTING.

From the Journal of Camera Club.

THE method of platinotype printing which I am about to demonstrate this evening, was fully described in my paper read at the Camera Club Conference in March, and published in the 17th number of the CAMERA CLUB JOURNAL. I do not now propose to enter into the principles of the method and the details there described; my task is simply to show how and in what manner the development is effected.

Unfortunately I have been quite prevented from working at this modification of the process until within the last week; consequently, I am unable to do more than show one of the many modes of development.

This method has been named by some the "Cold bath process," and though such a term does not indicate its essential or peculiar feature, yet I am quite willing to accept it, though on some accounts I should have preferred one more distinctive. What principally differences this method from the one at present in use is that the platinum salt from which the pigment is derived, instead of being mixed with the sensitive iron salt with which the paper is coated, is put with the developing solution.

In the paper read at the Conference many methods for developing were indicated—with phosphates, phosphates and oxalates, or oxalates alone; all, of course, in conjunction with a platinous salt. By varying these constituents, their quantities and proportions, by addition of varying quantities of acid or alkali, and by some other means, great differences may be secured in the qualities of the resulting prints; so much so that, from a series of exposed prints from the same negative, each print having received an equal exposure, it is possible to produce, by variations in development, a series of finished prints in which a distinct difference is observable between each member.

It is necessary to understand the action, or, at any rate, to have some theory about the action, of each constituent used, otherwise a search for the developer best adapted to give a certain result would well nigh be hopeless. I have had only three days' work in this direction—not enough to enable me to indicate with any exactitude what principles should guide one in the choice of a formula; instead, therefore, of making any attempt to enunciate these principles, I will first state the formula to be used this evening—one selected for general purposes, and calculated to give the tone usually obtained in the present process—and then explain the reason why each constituent has been added:—

THE FORMULA.

Oxalate of potash, . . .	30 grs.	} With water to make 1 oz. of developer.
Bi-phosphate potash, . .	30 grs.	
Potassic chloro-platinite, .	9 grs.	

To this developer may often be added with advantage one-fifth of its bulk of alcohol.

In practice, the developer is made up by mixing stock solutions of the salts named. A stock solution of the mixed potash salts may be made, and a portion of it mixed, when required for use, with the requisite quantity of a stock solution of the platinum salt.

The developer when mixed, that is to say, after the solution of platinum salt has been added to the solution of the other salts, slowly undergoes decomposition. The rapidity of this decomposition varies with the formula used, but as a general rule the bath will keep in good condition for some hours after it has been mixed.

In this formula the oxalate of potash may be termed the developing agent; by increasing its quantity a rapid development is secured, but the tone is usually cold and the image often granular; by decreasing the quantity the development is slowed, and the image is warmer and freer from granulation.

The phosphate of potash may also be considered a developing agent, but in this formula it is used for the purpose of rendering the ferrous image less rapidly soluble in the developer, thus giving more time for development to take place before it is dissolved away.

The quantity of the platinum salt may be varied, but to give brilliant and warm results I think it better not to use it of less strength than nine grains per ounce of developer. It is by the reduction of this salt by the ferrous image that the pigment platinum-black is obtained.

It is almost superfluous to state that this developer is not heated; no improvement in the resulting prints is apparent when a hot developer is used; on the other hand, no deterioration appears to result from employing a low temperature, though, probably, development then proceeds more slowly.

Development is first begun by floating the surface of the print upon the developer; it may be continued and completed by allowing the print to remain on the solution; or, what appears in most cases to be just as efficient, it may be removed from the developer as soon as the surface has been well wetted, and then held in the hand, or laid on a table, whilst development progresses, and until the right strength has been attained, when it should be immediately immersed in the acid bath. By removing the print as soon as the surface is wet, the developing-bath has very little time to dissolve the iron coating from the paper, and become deteriorated thereby;

indeed, by working in this way, I have on several occasions taken up by the surface of a series of prints nearly the whole of the solution from a developing-bath, and I have found that the prints last developed—after the solution had so far been reduced in bulk as scarcely to cover the bottom of the dish—were indistinguishable from those first done. Hence, it appears that the consumption of platinum salt is limited by the amount of liquid taken up by the surface of the print.

There are other modes of developing prints by this process—by the use of a brush; by applying the solution by means of fabric-coated and other rollers; by pulling the prints through a trough, and in many other ways.

I must confess that my early experiments led me to believe that brilliant, vigorous prints were usually of a cold color, but I now find that by slight modifications in the developer or in the paper a great range of tone or color may be obtained, and this very easily. By using different developers I have succeeded in securing every tone from a cold bluish-black to a rich and very warm brown-black, but the sepia tone obtainable by the process at present in use has not yet been fully secured. The amount of half-tone rendered is governed better by alterations to the developer than by any change in the coating of the paper. This ability to vary the results by alterations to the developer is of importance to those who like a process plastic to their hands—those who work as artists, and strive to execute what they conceive.

W. WILLIS.

ON THE STUDY OF DEVELOPERS.

A Chapter for Amateurs.

VARIOUS attempts have been made to explain the nature of the change wrought by light in the silver compound on an exposed plate, but all such explanations are as yet in the rank of pure hypotheses. Whatever the modification in substances may be, the time of reaction is very short; the change takes place almost instantly, and however faint the impression on the silver salt may be, it is capable of development until the silver is reduced in the whole film thickness of the portions acted on.

Aside from the improvements that may be reached in orthochromatic photography, better results than those heretofore attained must be arrived at, by increasing either the sensitiveness of the plate or the energy of the developer. Since the manipulation of the most rapid plates, now produced, requires the utmost care and delicacy, it is not probable that a much greater degree of sensitiveness would be practical; indeed, if the most rapid plates be sensitized with erythrosine or eosine for orthochromatic work, they should be developed in almost total darkness. We must, therefore, look for improved developers rather than for more rapid plates. The large number and variety of developing formulas that have lately been proposed have probably done as much to discourage as to aid the amateur, who would better, like the cat in the fable of the Cat, Hare and Hounds, know and understand one method of arriving at a desired result than to have an indefinite idea of many processes.

It is, of course, assumed that the amateur makes his own development, for he would be unworthy the name of photographer did he entrust to another the most interesting and critical of the photographic operations.

Each of the various substances that are used as developing agents possesses certain advantages, and may be peculiarly adapted to certain brands of plates and the

production of certain effects; but it by no means follows that the same developer will produce the same effect, with plates of different brands. Attempts to use a common developer for all sorts of plates usually results in the unjust condemnation of some of them. Emulsions, made at different times, but in the same manner, may act differently with the same developer. It is, therefore, important that a developer should be studied under various conditions with the plate to which it is to be applied.

Most of the plates in the market are capable of producing excellent negatives when properly worked, and it is well that the amateur should select one brand of plates, study the conditions under which he can obtain good results, and stick to that which he finds to be good, unless his time and disposition permit him to examine all plates.

The following method may be recommended for the study of the action of the developer. Let a house-front or wall—any object of which the illumination is uniform, and which will cover the whole plate—be selected as a subject, and let a short exposure be made, the lens well stopped down. The plate is then cut vertically into strips of a convenient width, and each of these strips is treated separately with the developer under experiment, different strengths and proportions of constituents being used. In order to obtain a correct idea of the influence of the time of exposure on the course of the development, it is well to submit simultaneously to the action of the developer similar strips from an instantaneous exposure, and one which has had a longer time.

The pyro developer generally gives the best results, and for its preparation there will be required saturated solutions of sodium sulphite and sodium carbonate. These are made by shaking the crystallized materials with water until no more will dissolve; a ten per cent. solution of potassium bromide; the pyro-gallic acid is best kept in the solid state; it dissolves very quickly.

The potassium bromide probably forms a double salt with the silver bromide on the plate, and this compound being less easily reduced the development is retarded as the proportion of potassium bromide is increased. The more bromide is employed, the greater will be the contrasts in the negative. If a soft negative be desired, but little bromide must be used.

The sodium sulphite prevents the oxidation of the pyrogallol by the oxygen of the air, and the consequent coloring of the bath and staining of the negative.

Precision is naturally to be desired whenever it is possible, but, as the impressions on the plate can never be considered identical unless all conditions be the same, any given formula for the developer may be much too strong for one case, too weak for another. Over-exposure may always be feared in the case of timed plates, but there is no necessity of losing the negative if proper care be taken. Let us suppose we have given five seconds exposure in a good light, and that there is a suspicion of over-exposure. Put in a measuring glass a teaspoonful of pyro, three or four drops of the bromide solution, about five cubic centimetres of the sodium sulphite solution, and enough water to conveniently cover the plate, say 200 c. c. Pour this into the tray, immerse the plate and allow it to bathe half a minute, then pour the liquid back into the measuring glass, add three or four drops of sodium carbonate solution, mix thoroughly and pour back on the plate. Now if there was over-exposure the image will begin to appear in about half a minute, or, in the contrary case, there is no result, and the liquid is again poured into the measuring glass, three or four drops of sodium

carbonate added, and the operation is repeated in this manner until the development begins. Then the addition of carbonate must be continued, a few drops at intervals of half a minute, until the half-tones and shadows are apparent; if, when the details are visible, the negative still lacks intensity, which can be ascertained only by rapidly examining it by transmitted light before the red lantern, some more pyro must be added, always making the mixture in the measuring glass, and pouring the re-inforced bath back on the plate.

The negative may sometimes become quite black by reflected light, and no image can be distinguished, but if the precautions indicated have been followed there is no occasion for alarm, unless indeed there have been marked contrast in the light and shade of the subject; this obscuring of the image will always occur when there are details over the whole surface of the plate, and the progress of the development must then be examined by transmitted light.

The process described may appear slow, but it really requires but little more time than would be necessary to spoil the negative by attempting to obtain the result more quickly. One excellent negative is better than a multitude of indifferent ones, and the good one cannot be obtained without care in development.

W. H.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A SPECIAL meeting was held Wednesday evening, June 20th, 1888, for the purpose of taking suitable action in regard to the sudden death of Mr. S. Fisher Corlies, late Treasurer of the Society.

The President, Mr. Frederic Graff, occupied the chair, and briefly announced the object of the meeting.

In addition to an intimate personal friendship with Mr. Corlies, he had been associated with him as a member of this Society since the date of its organization in 1862. He had also known him intimately as a member of the Zoological Society, and in many other organizations devoted to scientific objects and the public good. He could safely say he never knew a better man, or a more unselfish one. Always ready and glad to impart to others any knowledge he had acquired, he was truly a friend to every one, and had no enemies. His duties in this and all other organizations were always conscientiously and thoroughly performed.

Letters were read by the Secretary from Edward L. Wilson, of New York, and Charles R. Pancoast, of Waterbury, expressing deep regard for their deceased fellow member, and mourning his loss.

The President appointed Messrs. Browne, Samuel M. Fox, Coates, Springs and Caleb Cresson a committee for the purpose, who prepared the following minute, which was ordered to be entered upon the records of the Society.

"The Photographic Society of Philadelphia have heard, with deep regret, of the death of their late fellow member, S. Fisher Corlies.

"Connected with this Society from its organization, its Treasurer for over a quarter of a century; constant in his attendance at its meetings; firm and decided in his views, yet ever considerate of the opinions of others; always ready to aid with his sympathy and counsel; his genial, unselfish nature endeared him to all, and made

his influence—quiet and unassuming though it was—most potent for good in the history of the Society.

"Through years passed in his companionship we recall many pleasant recollections of his love for nature and all that is pure and beautiful; his skill in photography has left us with treasured mementos of happy hours passed with him, never to be forgotten.

"His death has cast a feeling of profound sorrow over this Society, and while we bow with reverence to the Almighty Power that has taken away our beloved member, we turn to his sorrowing family and respectfully offer our heartfelt sympathy in their irreparable loss."

On motion of Mr. Coates, Mr. Samuel M. Fox was appointed Treasurer *pro tem.* for the unexpired term of Mr. Corlies, or until a regular election can be held.

Adjourned.

ROBERT S. REDFIELD, *Secretary.*

THE MAGNESIUM FLASH LIGHT FOR ORDINARY GALLERY WORK.

THE applications of the new illuminator in photography are manifold, inasmuch as the direction of the source of light is under immediate control of the operator, and any desired effect may be secured. Its power of affecting a sensitive plate is even greater than the ordinary diffused light of the studio, while the results obtained are equally brilliant.

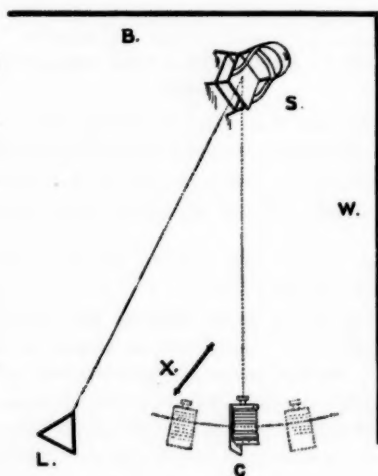
Notwithstanding the facility with which artistic methods of illuminating the subject may be carried out, there seems to be a prevailing inclination on the part of the professional to adhere to the old stereotyped plan, perhaps because the public is familiar with it, and might look askance and strangely at any innovation. We have, therefore, sought for the best means of obtaining with the flash light the proper illumination—side, front and top light with a single ignition. The illustrations in the present number of the AMERICAN JOURNAL OF PHOTOGRAPHY are the result of our endeavors, and are given merely as hints to the more skilled professional poser.

As a general rule, the point of ignition of the powder should be at a height of not less than seven feet from the floor, the double object of which is to cast the shadow somewhat downward, also to secure reflection from the ceiling, which serves as a toplight. If the ceiling of the studio is considerably above ten feet, a large screen of light gray color should be placed above the light to serve as a top reflector. It may, or it may not, be necessary to use side reflectors to illuminate the shadowed side of the face. When we first began to photograph with the flash light, we employed silvered paper screens as reflectors. We, however, soon found that the face was too uniformly lit up by such a plan. We then substituted ordinary light manilla paper, but in the examples we give in the present instance we have not used any reflector whatever.

We think the shadows on the dark side are well modulated, notwithstanding there has been only the very slightest retouching upon the negatives, in some cases no retouching whatever.

Unfortunately, the hot weather caused several of the plates to frill during development, and to get rid of the granulation we had recourse to the retoucher's pencil, but with regret. But in no case has half the retouching usually applied to gallery work been done upon the negative. However, we leave the photographs to the judgment of the critical eye, which can readily distinguish the touches of the sun's pencil from the re-toucher's stipple, and continue our instructions for securing proper illumination.

We said we dispensed with the reflectors for the shadow side, but, nevertheless, we had reflection, as any one may see. A long side wall, colored gray, at right angles to the background, threw back sufficient light to softly modulate the darkened portions of the face. So in practice we would recommend a large screen placed at some distance from the sitter rather than small ones close upon him. It may be interesting to know the direction of the light, and the position of the camera with respect to the sitter. We think we can convey the idea better by means of a diagram than by verbal description.



B represents the background. The sitter *S* is placed at any desired distance from it; the further removed the less shadow will be thrown upon it. *W* is the long side wall of gray. *L* is the position occupied by the illuminator used to study the lighting of the face, and also the place occupied by the powder. *X* is a screw to prevent any rays of light from entering the lens. *L* should be at least seven feet from the floor, and it will be seen it is at an angle of about 30 degrees to a line perpendicular to the sitter. The camera is at *C*, and of course may be moved in the arc represented by dotted lines or brought nearer the subject when desired. The light *L* should be at a distance so as to strike the head of the sitter at about 30 degrees.

The ignition of the powder is best effected by employing a pneumatic bulb and tube connected with a blowpipe for throwing a jet of flame from a lamp or Bunsen burner turned upon the charge. Some means also might be used to make a simultaneous uncovering of the lens and ignition of the powder. The mere operation of

taking off the cap is the signal for calling up a constrained expression upon the sitter. Unfortunately, we did not possess such a piece of apparatus, and as our little subjects soon became wise enough to know that the firing followed the uncovering of the lens, they put on their photographic faces at once. However, we were satisfied to secure a few exposures while they remained in blissful ignorance. We do not advise the use of pistols, or other devices of similar character, for igniting the powder. They concentrate the light too much to a point, while the aim should be to diffuse it as much as possible. A reflector of any bright surface material should be placed back of the light to prevent its diffusion in other parts of the room. Remember never to turn down the light used in getting the proper illumination. A few seconds exposure of the plate to its influence cannot possibly produce any impression upon the sensitive surface. The presence of ordinary light prevents the owl-like expression of the eyes obtained when the discharge is made in total darkness. The contrast from total darkness to the brilliant illumination is also very unpleasant and startling to the sitter. The plate used was Cramer's 35; the lens Ross' Rapid Symmetrical $f/16$.

A PERFECT ORTHOCHROMATIC PLATE.

MR. F. E. IVES has shown us some very interesting spectrum photographs, made on commercial gelatino-bromide plates treated with cyanine by different methods.

Heretofore, the best results were had by Schumann's method, the plates being dipped in a solution of cyanine in water with alcohol and ammonia, after a preliminary soaking in dilute ammonia.

This process is evidently troublesome as well as complicated, and unsafe for very rapid plates.

Now just here comes in the value of Mr. Ives' new method. It is much quicker and far more simple than Schumann's or anyone's else, and can be successfully applied to the most rapid brand of plates in the market. It also gives far more orange, yellow and green sensitiveness, and even with the shortest exposures the action extends well into the true red of the spectrum.

He has also found that the plates may be made to keep well by simply dipping them in a thin gelatine solution before drying.

It is now but a short time since the greatest objection to the orthochromatic processes was held to be their comparative slowness. Now it would appear that the greatest objection to this new method with cyanine is that the plates are too red-sensitive to be successfully managed by any but the most skilful and careful manipulation. But the same method with erythrosin also has advantages over older methods, and produces plates that are easily managed in red light.

It is a most astonishing fact that after so many years of experiment leading to the adoption of complicated and troublesome methods of orthochromatizing gelatine bromide plates, a simple method should be found to give better results. The difficulties and uncertainties attending the orthochromatizing of gelatino-bromide plates has caused a fresh stir of interest in collodion emulsion. Dr. Eder, Albert and others have been experimenting with a view of producing orthochromatic collodion plates.

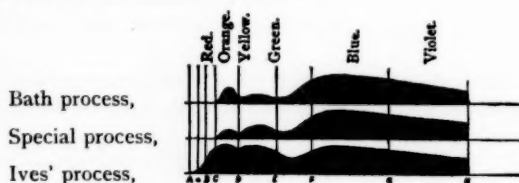
Indeed, Dr. Vogel maintained several years ago that collodion was more suitable for the purpose than gelatine, but now these late discoveries of Mr. Ives reinstate the plates in our favor.

The preparation of orthochromatic collodion plates involves skill and trouble, where the orthochromatizing of a gelatine plate requires only ordinary care. Mr. Ives' process has been published in the proceedings of the Philadelphia Photographic Society, printed in the columns of this magazine. With his characteristic generosity with all his discoveries he has made fully known the plan, so that any one may produce a perfect orthochromatic plate at little cost, and with the expenditure of but little skill.

His method consists simply in flowing over an ordinary commercial gelatine plate with a $\frac{1}{4}$ gr. alcoholic solution of the color sensitizer, allowing it to dry, and then washing it in water.

The plate so prepared may be used at once, either wet or dry. Mr. Ives says his process gives better results with certain brands of plates than with other of equal sensitiveness, depending, it would seem, upon the character of the emulsion. He has obtained especially good results with the Seed plate of 25 sensitometer number.

Mr. Ives has kindly prepared for us a diagram, illustrating the different action of cyanine when applied by different methods.



A BLITZ-PULVER PARTY.

ONE of the first things which the enthusiastic amateur photographer generally attempts is the production of a portrait which shall represent to a greater or less degree some one of the members of his family.

Armed with a Waterbury lens and camera, and plates of only moderate rapidity, with little or no experience in the most difficult matters of lighting and posing, and following the cast-iron rules for development which the platemaker has furnished, it is only natural that the results should border on the grotesque. Indeed, the lack of success in this direction is often sufficient to damp the enthusiasm to such an extent as to prevent many from making further attempts at portraiture under any circumstances. This is the more to be regretted, because it is possible to obtain very satisfactory effects with quite moderate appliances, if only perseverance and judgment are permitted to have full sway.

When Sir Joshua Reynolds was asked with what medium he mixed his colors, he replied "with brains." The same ingredient must also enter into the composition of a portrait photograph, and if brains and judgment are only exercised, it is surprising to find how few accessories are really necessary.

When the average amateur portrait is produced for family admiration, what an object it is. All the defects of under-exposure, hardness in the high lights, blackness in the shadows, together with distortion due to shortness of focus and unsuitability of position, are painfully apparent. The light appears to come from several directions and from no particular direction, and the entire effect is almost painful, especially to the unfortunate sitter, who wonders if photography really cannot lie.

The greatest defect is generally under-exposure, and as the time of exposure is necessarily limited, the remedy is to be found only in increased illumination and the use of rapid plates. One of the most successful portraits in the writer's album was taken indoors with a Waterbury lens, but the sitter was able to remain still for eighteen seconds, and a rapid plate (Seeds, No. 23) was used. Generally, however, if a single lens is to be used, out-door illumination is a necessity, and in the country there are many places under porches or in shaded corners where a bright reflection from a northern sky may be obtained.

Prolonged development with a dilute developer should be adopted, producing a negative of only moderate density, detail being secured by a predominance of alkali, and this will remedy most of the harshness which would otherwise be produced.

Really satisfactory portraits, however, demand a rapid lens, or, at least, one which will give fairly good definition with a large aperture. A portrait lens of the Petzval combination is rather too expensive a luxury to be found in the hands of the amateur, but a well-made rectilinear lens working with an aperture of not less than $f/8$, will be found capable of doing excellent work. The writer has found that the new antiphanetic combination of Steinheil, of Munich, holds a position about midway between the rapid rectilinear and the portrait, and is admirably suited for all general work.

The introduction of the magnesium flash light, and the improvements which have been made in its composition, make it by far the most efficient means of obtaining really good portraits. At first it was supposed that the flash-light was little more than a plaything, and the black-looking groups and interiors were certainly not very beautiful.

More recent developments show that portrait effects fully equal to those obtained under the skylight may be secured at home by this method, and it is the writer's firm conviction that it will ultimately become the general method of portraiture.

A flash-light party is one of the most enjoyable ways of passing an evening that can be attempted, and the natural pleasant expression and graceful posing secured in the absence of constraint, make it possible to excel gallery work in the point of naturalness at least.

It was on the night of the memorable "Blizzard Monday" that a merry party gathered, after a struggle through the snow, to pass the evening posing in costume before the camera. All the remains of fancy dress costumes, scarfs, shawls, beads and other discarded finery, had been gathered together, and many things long since past using by daylight were found to be of full value for this new purpose.

A pair of heavy curtains suspended in the large double doorway, afforded an excellent background without further preparation, and the house step-ladder was called into requisition as a support for the flash pan.

By the time the camera was placed and the furniture moved, a number of brightly-costumed figures came laughing down from the dressing-room above.

First to stand before the camera comes a Turkish dancing girl, decked with beads and bangles, and shaking her tambourine as she comes. In the meantime the artistic member of the party, who had been superintending the costuming, takes the model in charge, and standing off to view the effect, issues her directions.

"There, keep that position for a moment; only put your foot a little further forward, and don't hold the tambourine so high."

"Don't stare, but look right at me, and do stop laughing."

So the orders come from the mistress of ceremonies, and meanwhile the man behind the camera is focusing on the brightly-figured costume before him.

"Now hold the candle right by her head, so that I can see what I am doing," comes from under the focusing cloth; and so with much merriment the pose is arranged.

To put on the cap and draw the slide is but the work of an instant, and then the "Blitz," which has been reposing quietly in the lid of a blacking box on top of the step-ladder, is touched off as the cap is removed and the exposure completed.

As the lady of the harem trips out of the way, "Pooh Bah" in all his dignity comes sneering forward, robed in a dressing gown of gay print, and shouldering a paper parasol. His advent is the signal for renewed applause, but he stands before the draped curtains as if such trifles were beneath his notice.

While the position of the Japanese office-holder is being adjusted, the blacking box lid is receiving another charge of "Blitz," and in the next moment the countenance of his highness has been transferred to the gelatine plate.

So the fun goes on, and turn after turn the merry members of the Blitz party pose while the snow is falling and the wind howling outside.

A jolly Dutch maiden shows her teeth just in time for the flash to light the glistening pearls, while the stern countenance of "Feramorz," in diamonds and dignity, fills all the party with mock terror. Marguerite, with her gold-clasped prayer book, sits in church, or plucks the petals of the daisy as she murmurs, "he loves me, he loves me not," and the smiling maiden attired "ready for the dance," stands waiting for her partner.

Finally, the party separate to face the storm once more, and the only bar to the completeness of the entertainment lies in the fact that development, printing and toning must take place before the results can be seen.

Now, it is upon this matter of development as much as anything that the success of the work depends, and the motto should be "plenty of water and plenty of time." With the commercial stock developers, containing an ounce of pyrogallol in sixteen ounces of water, and a saturated solution of potash or soda, one dram of pyro to three drams of alkali in not less than six to eight ounces of water, will do the work if you are willing to wait twenty-five to thirty minutes for the development to complete itself. A quick dip in a strong bath of chrome alum to harden the very soft film will make things all right for the fixing bath, and the harsh contrasts and black shadows will be conspicuous by their absence.

Many Blitz negatives condemned as under timed are really fully timed but only underdeveloped, and if the plates used are good for anything, and the light in the dark room is safe, it is the question of time and patience which will determine the success.

A number of the negatives which were made under the circumstances above described were used for the illustrations of the May number of this journal, and the varied effects of home costuming may there be compared.

HENRY HARRISON SUPLEE.

SUBTERRANEAN PHOTOGRAPHY.—Mr. William H. Rau, of this city, and Mr. E. F. C. Davis, of Pottsville, have been using magnesium Blitz-pulver for successfully photographing a coal mine. Mr. Rau has just returned with a series of beautiful negatives, showing the various operations incident upon mining anthracite. The structure of the coal is admirably brought out, and the arrangement of the mine better displayed than in any photograph we have seen. The views of the construction of the breasts and lodes reveal much detail. The collieries represented are the Kohinoor, Indian Ridge, and under Shenandoah City. Charges of Blitz-pulver were placed back of the cameras, and also in the recesses of the breasts, but so arranged as not to flare in the lenses when ignited. The charges were ignited one after the other, the gentlemen not having the means at hand for simultaneous discharge. The whole time occupied in the mine was less than three hours, during which a goodly number of interesting pictures were secured. The same collieries were photographed some years ago by Mr. Bretz, of Pottsville, by aid of the arc light, the exposures lasting 30 minutes or more. These pictures were made for the Smithsonian Institution at Washington.

The exposures with the flash light of course were only momentary, nevertheless the results are most excellent. In photographing subterranean places, or very dark interiors in which there are no moving figures, successive discharges of moderate doses of powder will give better results than the ignition at once of the same quantity in bulk.

THE *British Journal of Photography*, under the heading, "American Men and Matters," has the following kind words of approval for THE AMERICAN JOURNAL OF PHOTOGRAPHY:

"By way of filling a gap which might have been felt by the transference of the *Philadelphia Photographer* to New York, THE AMERICAN JOURNAL OF PHOTOGRAPHY is now most ably occupying the territory."

"Originally a mere price list of the goods of the enterprising McCollin, of Philadelphia, it has developed into a really high-class journal, edited by Mr. John Bartlett, with Dr. Ellerslie Wallace as writer of its leading article. But we reserve further notice of any of its contents to a future number."

We highly appreciate such commendation, coming, as it does, from the leading photographic journal of the world, and we shall use every effort to keep our journal up to the standard it has attained.

THE Photogravure Co., of New York, intends issuing a monthly publication entitled *Sun and Shade*, the principal object of which is to make the general public acquainted with the recent improvements in the reproduction processes. *Sun and*

Shade will combine with the work of the camera the productions of the brush and pencil.

Judging from some of the excellent work which we have seen produced by the Photogravure Co., we anticipate beautiful results, and trust that the new enterprise will receive generous support from all interested in art and photography.

The first issue will appear in July. Each number will contain no less than twelve pages of prints by direct reproductive process, and an art supplement in photogravure.

MR. JOHN CARBUTT has kindly sent us a specimen of his Hydrochinone One Solution Developer. The results we obtained, as anticipated, are quite equal to the best work with pyro. The action of the developer is not quite as rapid as that of pyro, but its power seems to be greater. The solution remained perfectly clear after a score or more plates had been developed in it. By reason of the immunity from staining, any degree of density may be secured. A negative may be developed to intense black and white, so as to be used for photo-mechanical work without necessitating any extra intensification. There does not seem any inclination on the part of the plates to fog, notwithstanding the prolonged development to which they are subjected.

By the courtesy of Scovill Manufacturing Co., we have received their new publication entitled *The Photographic Negative*, by W. H. Burbank. The book combines historical information with practical experience, so that the growth of the art may be learned while pursuing the experimental processes.

The necessary knowledge for successful manipulation is conveyed in a clear, concise manner, and the pages are not over-charged with useless matter, to darken council by words without wisdom.

The author has selected those methods only which have proved to be of value in practical experience, and the formulæ he quotes are all the result of the labors of men known to the profession.

WE hope many will take advantage of the reduced railroad and hotel rates to attend the great Convention of the Photographic Association of America at Minneapolis.

The committee of Minneapolis and St. Paul photographers—according to the assertion of the editor of *The Eye*—has taken the matter in hand, to give a royal entertainment and an agreeable surprise to the visiting photographers. Their plans have not been made public, but we are assured that any who contemplate staying away will wish, after it is too late, they had been there.

In the list of prizes at the Minneapolis Convention we forgot to mention in our last issue the Acme Burnisher Co.'s Prize—an individual prize offered by the Acme Burnisher Company, of Syracuse, N. Y. They offer one of their latest improved 26-inch Acme Photo Burnishers as a special prize for the finest display of plain portrait

photography, from an artistic point of view, regardless of the size and number of the pictures exhibited. Judges will be appointed at the Convention. They will have the 26-inch burnisher at the Convention, and it will be delivered after the decision of the judges.

THE following kind words from the *British Journal of Photography* are from its genial editor: "Within the past few weeks we have been gratified by receiving visits from many American photographic amateurs, and the number is likely to be increasingly great. To such we may say that the editorial and publishing offices of this *Journal*, situated in the centre of London, are entirely at their services; a commodious dark room, in which to charge and develop plates, not being the smallest inducement. A special letter of introduction will not be found necessary.

PENETRATION OF LIGHT BENEATH THE SURFACE OF WATER.—M. Forel, in *Comptes Rendus*, has determined that the limits of absolute darkness for chloride of silver range from 45 metres in July to 110 in March. The variations in these limits correspond closely with those for visibility. The water of Lake Geneva, in which the experiments were made, is more limpid in winter than in summer.—*American Journal of Science*.

We are glad to learn that the Photographic Society of Great Britain intends to abandon the medal system at the exhibition this year. It is a most excellent movement, and worthy the consideration of our own Societies and of the P. A. of A. The giving of medals is of doubtful propriety; at least, it has not been a stimulus to good work, but rather a cause of disaffection.

MESSRS. E. & H. T. ANTHONY & Co. intend to issue in time for the Convention their International Annual. It will fill a place unoccupied by any existing similar publication. It is under the able management of Dr. Arthur H. Elliott and W. Jerome Harrison, F. G. S., and will contain contributions from the best writers on photographic subjects. We have no doubt of its great success.

It has been suggested that the machine known as the "Milk Shaker" might be made useful in agitating emulsions.



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1—10x12 Cone View Camera, Double Swing, new	52 80
1—14x17 New Haven Acme Portrait Camera, Single Swing, new	46 00
1—4x4 Standard Portrait Camera wet holder, new	14 75
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1—6½x8½ View Camera and Lens	12 00
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod . .	25 00
1—6½x8½ American Optical Co. first qual. View Camera . . .	23 00
1—4¼x5½ Ex. qual. Portrait Camera	47 50
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1—5x8 Blair View Camera, single swing	17 00

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1—½ size Darlot Portrait lens, .	5 00
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1—Matched pair German Stereoscopic Lenses, in good order .	15 00
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1—4x4 Darlot Globe Lens . . .	25 00
1—4x4 " " "	20 00
1—½ size L. W. Krantz Portrait Lens	12 50
1—¼ size portrait lens	3 00

1— $\frac{1}{2}$ size C. C. Harrison portrait lens	8 00
1— $\frac{1}{2}$ size Darlot quick acting Portrait Lens, central stops .	18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	38 00
1—Extra 4x4 Chapman Portrait Lens	20 00
1—8x10 E. A. View Lens	5 00

1—Ross View Lens	5 00
1—H. Fitz Double View Lens, revolving stops	8 00
1—8x10 Voigtlander Portrait Lens	80 50
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1—4x4 Walz Portrait Lens . .	20 00
1— $\frac{1}{8}$ Beck Microscopic Objective, nearly new,	20 00

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